

WHAT IS CLAIMED IS:

1. A method for controlling a motor vehicle drivetrain system, which motor vehicle drivetrain system has a drivetrain (122) as well as a combustion engine (124) for the purpose of driving this drivetrain (122) and which motor vehicle drivetrain system, furthermore, has an electronic engine control unit (132) that controls the combustion engine (124) as well as an electronic transmission control unit (110) for the purpose of controlling at least one device arranged in the drivetrain, that is to say, torque transmission device (114, 116) and/or gearbox device (102, 106) where the electronic engine control unit (132) has a signal output upon which adjoins a signal transmission link and where the electronic engine control unit (132) via this signal output and this signal transmission link, at least when the electronic engine control unit (132) as well as the signal transmission link is functioning properly, will transmit signals in operation, which signals can be acquired by the electronic engine control unit (132), characterized in that the electronic engine control unit (132) on the basis of the signals actually controlled by the electronic engine control unit (132) will determine whether there is a functional impairment in the unit from the device arranged in the drivetrain, that is to say, the torque transmission device (114, 116) and/or gearbox device (102, 106), the electronic transmission control unit (110) and the signal transmission link where the electronic engine control unit (132) limits the maximum permissible engine torque of the combustion engine when it has determined a functional impairment.
2. A method for controlling a motor vehicle drivetrain system, which motor vehicle drivetrain system has a gearbox device (102, 106) arranged in a drivetrain (122) and/or at least one torque transmission device (114) arranged in drivetrain (122) where the motor vehicle drivetrain system furthermore has a combustion engine (124) for the purpose of driving the drivetrain (122) as well as an electronic engine control unit (132) that controls the combustion engine (124) and an electronic transmission control unit (110) for the purpose of controlling the gearbox device (102, 106) and/or at least one torque transmission device (114), characterized in that one determines whether between the electronic transmission control unit (110) and the electronic engine control unit (132) there is a data or signal communication or there is a functioning data or signal communication and/or where one determines whether the electronic

transmission control unit (110) is indeed functionally impaired and/or where one determines whether the gearbox device (102, 106) and/or the torque transmission device (114) is functionally impaired where the maximum permissible engine torque of the combustion engine (124) is limited when it is determined that there is no data or signal communication and/or that there is a functionally impaired data or signal communication between the electronic transmission control unit (110) and the electronic engine control unit (132) and/or the maximum permissible engine torque of the combustion engine (124) is limited when it is determined that the electronic transmission control unit (110) is functionally impaired and/or the maximum permissible engine torque of the combustion engine (124) is limited when it is determined that the gearbox device (102, 106) and/or the torque transmission device (114) is functionally impaired.

3. A method for controlling a motor vehicle drivetrain system, which motor vehicle drivetrain system has a gearbox device (102, 106) arranged in a drivetrain (122) and/or at least one torque transmission device (114) arranged in drivetrain (122) where the motor vehicle drivetrain system furthermore has a combustion engine (124) for the purpose of driving the drivetrain (122) as well as an electronic engine control unit (132) that controls the combustion engine (124) and an electronic transmission control unit (110) for the purpose of controlling the gearbox device (102, 106) and/or at least one torque transmission device (114), characterized in that one determines whether between the electronic transmission control unit (110) and the electronic engine control unit (132) there is a data or signal communication or there is a functioning data or signal communication and/or where one determines whether the electronic transmission control unit (110) is indeed functionally impaired and/or where one determines whether the gearbox device (102, 106) and/or the torque transmission device (114) is functionally impaired, where the combustion engine (124) is turned off when it is determined that there is no data or signal communication and/or that there is a functionally impaired data or signal communication between the electronic transmission control unit (110) and the electronic engine control unit (132) and/or the combustion engine (124) is turned off when it is determined that the electronic transmission control unit (110) is functionally impaired and/or the combustion engine (124) is turned off when it is determined that there is a functional impairment in the gearbox device (102, 106) and/or in the torque transmission device (114) and when in each case

it is additionally ascertained that the brake (140) of motor vehicle (100) is actuated and/or when it is additionally ascertained in each case that the vehicle speed is less than a predetermined speed limit and/or when it is additionally ascertained that the engine speed is less than a predetermined boundary and/or when it is additionally ascertained that the idle controller torque is greater than a predetermined boundary value and/or when it is additionally ascertained that a selection lever that can be actuated by the driver is neither in the park position nor in the neutral position.

4. The method according to Claim 2, characterized in that one determines by means of the electronic engine control unit (132) whether there is a data or signal communication or a functioning data or signal communication between the electronic transmission control unit (110) and the electronic engine control unit (132) and/or where one determines by means of the electronic engine control unit (132) whether the electronic transmission control unit (110) is functionally impaired and/or where one determines by means of electronic engine control unit (132) whether the gearbox device (102, 106) and/or the torque transmission device (114) are functionally impaired and/or where the maximum permissible engine torque is limited by means of the electronic engine control unit (132) and/or where the combustion engine (124) is turned off by means of the electronic engine control unit (132).

5. The method according to Claim 3, characterized in that one determines by means of the electronic engine control unit (132) whether there is a data or signal communication or a functioning data or signal communication between the electronic transmission control unit (110) and the electronic engine control unit (132) and/or where one determines by means of the electronic engine control unit (132) whether the electronic transmission control unit (110) is functionally impaired and/or where one determines by means of electronic engine control unit (132) whether the gearbox device (102, 106) and/or the torque transmission device (114) are functionally impaired and/or where the maximum permissible engine torque is limited by means of the electronic engine control unit (132) and/or where the combustion engine (124) is turned off by means of the electronic engine control unit (132).

6. A method for controlling a motor vehicle drivetrain system, which has a drivetrain (122) that can be loaded by means of a combustion engine (124) as well as an electronic engine control unit (132) for the purpose of controlling the combustion engine (124) and an electronic transmission control unit (110), whereby the electronic engine control unit (132) determines by

means of a predetermined characteristic whether it has lost communication with the electronic transmission control unit (110) and where the electronic engine control unit (132) limits the maximum permissible engine torque when it ascertains that it has lost communication with the electronic transmission control unit (110).

5 7. The method according to Claim 6, characterized in that the electronic transmission control unit (110) will alter an alive counter in a predetermined manner if there is a data or signal communication or a functioning data or signal communication between the electronic transmission control unit (110) and the electronic engine control unit (132) and/or if the electronic transmission control unit (110) is functioning and/or if the signal transmission link is
10 properly functioning, while the electronic engine control unit (132) determines whether the alive counter is altered in the predetermined manner and if the alive counter is not altered in the predetermined manner or is not altered correctly, it ascertains that there is no data or signal communication and/or that there is a functionally impaired data or signal communication between the electronic transmission control unit (110) and the electronic engine control unit
15 (132) and/or ascertains that the electronic transmission control unit (110) and/or the signal transmission link are functionally impaired, in particular, that they have failed.

8. The method according to Claim 7, characterized in that the alive counter is a signal that represents a numerical value and that at predetermined time intervals a CAN bus is transmitted from the electronic transmission control unit, whereby the particular following signal is altered in
20 a predetermined manner when compared to the particular preceding one, where the electronic engine control unit (132) determines whether this signal is altered in the predetermined manner and where it ascertains, if there is no change or if there is no correct change according to the predetermined manner, that there is no data or signal communication or a functionally impaired data or signal communication between the electronic transmission control unit (110) and the
25 electronic engine control unit (132) and/or ascertains that the electronic transmission control unit (110) and/or the signal transmission link is functionally impaired, in particular, has failed.

9. The method according to Claim 8, characterized in that one determines whether the electronic transmission control unit (110) transmits predetermined signals to a CAN bus system (142) where, when it is ascertained that the electronic transmission control unit (110) does not
30 transmit these predetermined signals to a CAN bus system (142), it is then ascertained that there

is no data or signal communication or a functionally impaired data or signal communication between the electronic transmission control unit (110) and the electronic engine control unit (132) and/or it is ascertained that the electronic transmission control unit (110) has failed and/or that the signal transmission link has failed.

5 10. The method according to Claim 9, characterized in that the maximum permissible engine torque is limited to an upper boundary value, the engine torque boundary, and that there is provided precisely one engine torque boundary to limit the maximum permissible engine torque.

11. The method according to Claim 10, characterized in that the maximum permissible engine torque is limited to an upper boundary value, the engine torque boundary, and that several
10 engine torque boundaries are provided to limit the maximum permissible engine torque.

12. The method according to Claim 11, characterized in that the engine torque boundary for the maximum permissible engine torque or any engine torque boundary is a constant value for the maximum permissible engine torque.

13. The method according to Claim 12, characterized in that the engine torque boundary for
15 the maximum permissible engine torque or any or at least one engine torque boundary for the maximum permissible engine torque is a functional interrelationship.

14. The method according to Claim 13, characterized in that in order to limit the maximum permissible engine torque, one selects an engine torque boundary for the maximum permissible engine torque from a plurality of predetermined engine torque boundaries for the maximum
20 permissible engine torque and that the maximum permissible engine torque is limited in accordance with this selected engine torque boundary.

15. The method according to Claim 14, characterized in that the engine torque boundary for the maximum permissible engine torque is selected or determined as a function of at least one operating parameter of the motor vehicle and that the maximum permissible engine torque is
25 limited in accordance with this selected or determined engine torque boundary.

16. The method according to Claim 15, characterized in that the engine torque boundary for the maximum permissible engine torque is selected or determined as a function of the position of a part of the motor vehicle that can be actuated by the driver and that the maximum permissible engine torque is limited in accordance with this selected or determined engine torque boundary.

17. The method according to Claim 16, characterized in that the engine torque boundary for the maximum permissible engine torque is selected or determined as a function of the position of a gas pedal of the motor vehicle and that the maximum permissible engine torque is limited in accordance with this selected or determined engine torque boundary.

5 18. The method according to Claim 17, characterized in that there is provided a service brake (140) of the motor vehicle (100) that can generate a predetermined braking torque and that the engine torque boundary for the maximum permissible engine torque is set at a value that is a function of that braking torque.

10 19. The method according to Claim 18, characterized in that the engine torque boundary for the maximum permissible engine torque is set at a value that is lesser than or equal to the quotient from the braking torque that can be generated by the service brake (140) and the currently given and/or maximally or minimally selectable gear ratio in the drivetrain (122) between the engine output shaft and the driving axles (130) of the motor vehicle (100).

15 20. The method according to Claim 19, characterized in that the electronic transmission control unit (110) sends out at least one signal which indicates whether there is a functional impairment in the gearbox unit (102, 106) and/or the torque transmission device (114) where the electronic engine control unit (132) monitors this signal to determine whether there is a functional impairment in the torque transmission device (114, 116) and/or the gearbox device (102, 106) or in the unit comprising the torque transmission device (114, 116) and/or the gearbox
20 device (102, 106) and ascertains that such a functional impairment exists when this signal indicates a functional impairment of the torque transmission device (114, 116) and/or a gearbox device (102, 106).

21. A safety system for a motor vehicle (100), where this safety system can receive, transmit and process electronic signals and has a memory device (136) in which there is stored at least one
25 control program (138) that controls a method according to Claim 1.

22. The safety system according to Claim 21, characterized in that the safety system (134) comprises an electronic engine control unit (132) and that this electronic engine control unit (132) can receive, transmit and process electronic signals and has the memory device (136) in which there is stored at least the control program (138) that controls said method.

23. A motor vehicle with a drivetrain system, which drivetrain system has a drivetrain (122) that at the driving end is coupled with a combustion engine (124) and when in operation is loaded by it and that on the power output side is coupled with wheels (126, 128) of the motor vehicle (100) so that these wheels (126,128) can be driven by means of combustion engine (124),
5 whereby in this drivetrain (122) there is arranged a transmission (102) that can be actuated by means of a gearbox actuation device (106) by means of which one can alter the gear ratio given in the drivetrain (122) between the combustion engine (124) and the drivable wheels (126, 128) where, furthermore, at least there is in the drivetrain (122) a starting clutch (114) that can be actuated by means of a clutch actuation device (116) and where the drivetrain system has an
10 electronic engine control unit (132) for the purpose of controlling the combustion engine (124) as well as an electronic transmission control unit (110) to control the gearbox device (102, 106) or a gearbox actuation device (106) and/or the starting clutch (114) or clutch actuation device (116), whereby a brake (140) is provided for the purpose of braking the motor vehicle (100) where there is furthermore provided an idle controller that controls the combustion engine (124) or a fuel
15 calculation member in operation in such a way that the engine torque will be increased when the engine speed falls below the idle speed in order to raise the engine speed to or above that idle speed and where the engine output as well as the selectable gear ratios of the drivetrain (122) and the regulatory function of the idle controller are such that at least in case of a selectable gear ratio and if the drivetrain (122) is engaged, the engine torque could be raised to a value that is such
20 that in case of this gear ratio, the braking torque of the brake (140) would not suffice to bring about a deceleration of the device (100), whereby, furthermore, there is provided a safety system (134) according to Claim 21, which ensures that this motor vehicle (100) can be braked by means of this brake (140) with the drivetrain (122) engaged and with each gear ratio that can be selected in this drivetrain (122).